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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,514	12/05/2001	Kenneth H.P. Chang	SSI004US	6445

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PATENT LAW OFFICES OF DAVID MILLERS
6560 ASHFIELD COURT
SAN JOSE, CA 95120

EXAMINER	
SKED, MATTHEW J	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/010,514	CHANG, KENNETH H.P.	
	Examiner	Art Unit	
	Matthew J. Sked	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 20-25* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1, 17 and 21 have been considered but are moot in view of the new ground(s) of rejection.

2. It is noted that the applicant did not traverse the Official Notice taken in the previous Office Action and therefore it is taken to be admitted prior art (see MPEP 2144.03).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 21-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 21 is drawn to a "program" *per se* as recited in the preamble and as such is non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data

structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 9-12, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Covell et al. (U.S. Pat. 5,828,994), cited in the previous Office Action

As per claim 1, Covell teaches a process comprising:

preprocessing audio data to determine parameters associated with time scaling of the audio data (speech is first analyzed to determine characteristics such as tension, col. 4, lines 55-67);

providing the audio data and the parameters to a device (audio tension value used to adjust the compression rate which is then applied to the time scale modifier, col. 5, lines 54-61); and

having the device use the parameters in time scaling the audio data to generate time-scaled audio, wherein using the parameters in the time scaling requires less processing power than would time scaling of the audio data without using the parameters (The audio tension value is used to adjust the compression rate, which is then applied to the time scale modifier. The tension is related to the voicing and as such stressed sounds are compressed less than pauses, therefore in a SOLA time scaling device there would be less overlap-add operations for a lower compression rate hence being less computationally expensive than a uniform time-scaling device, col. 5, lines 22-35, 54-61 and col. 8, line 58 to col. 9, line 13).

7. As per claim 2, Covell teaches the device uses the audio data and the parameters to perform real-time scaling of the audio data (audio tension value used to adjust the compression rate which is then applied to the time scale modifier to time-scale the audio data, col. 5, lines 54-61);

8. As per claim 3, Covell teaches recording the audio data and the parameters on a storage media that the device can read and the device accessing the storage media to read the audio data and the parameters (audio data is stored in memory and the determined parameters are used to determine the compression hence they must inherently be stored or buffered in memory for computation, col. 3, lines 52-64 and col. 5, lines 54-61).

9. As per claim 4, Covell teaches the storage media is a disk (col. 3, lines 52-64).

10. As per claim 9, Covell teaches the audio data comprises a plurality of input frames (input speech divided into frames, col. 6, lines 27-36); and

one or more of the parameters classify respective audio contents of the input frames (energy in the speech is a indication of how stressed the sound is, col. 5, lines 22-35).

11. As per claim 10, Covell teaches the parameters identify which of the input frames represent silence (pauses, col. 5, lines 22-35).

12. As per claim 11, Covell teaches processing the input frames that the parameters indicate represent silence differently from processing of the input frames that the parameters indicate are not silence (energy provides an indicator of how much the signal should be compressed, col. 5, lines 22-35).

13. As per claim 12, Covell teaches wherein a voice mail system performs the preprocessing of the audio data to determine the parameters associated with time scaling of the audio data (used in a voicemail system, col. 3, lines 52-63).

14. As per claim 21, Covell teaches an audio data structure, comprising:

a plurality of frames respectively corresponding to sections of audio, each frame comprising a plurality of samples of the corresponding section of audio (divides the speech signal into frames, col. 6, lines 27-36); and

one or more parameters for each frame, the parameters providing information that reduces an amount of processing power needed for time scaling the audio data (The audio tension value is used to adjust the compression rate, which is then applied

to the time scale modifier. The tension is related to the voicing and as such stressed sounds are compressed less than pauses, therefore in a SOLA time scaling device there would be less overlap-add operations for a lower compression rate hence being less computationally expensive than a uniform time-scaling device, col. 5, lines 22-35, 54-61 and col. 8, line 58 to col. 9, line 13).

15. As per claim 25, Covell teaches wherein one or more parameters indicate which of the frames correspond to silent sections of the audio (pauses, col. 5, lines 22-35).

16. Claims 17, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Roucos et al. ("High Quality Time-Scale Modification for Speech").

As per claim 17, Roucos teaches a process for time scaling of audio comprising:

preprocessing audio data to determine one or more parameters indication a relation between time scales and offsets of a frame of the audio data relative to preceding audio data during a time scaling process; receiving the frame of the audio data with the parameters; using the parameters to determine an offset that corresponds to a selected time scale (the speech rate modification factor is a function of the offset of the incoming signal and the offset of the outgoing signal, therefore in order to determine the needed output offset the incoming offset must be determined from the speech signal, section 2); and

generating a time-scaled frame using the audio data and the offset (input signal frames and determined incoming offset are both used in the calculation of the initial

estimate of the time-scaled signal which is used in the subsequent calculations to determine the time-scaled signal, section 3).

17. As per claim 18, Roucos teaches the parameters comprise a plurality of preprocessed offsets that respectively correspond to a plurality of time scales (the speech signal is broken up into frames each with its own offset where each offset would correspondingly have a time-scale calculated for it, sections 2-3).

18. As per claim 20, Roucos teaches a listener selecting the selected time scale for presentation of the audio (the speech rate modification factor is a function of the offset of the incoming signal and the offset of the outgoing signal, therefore in order to determine the needed output offset the incoming offset must be determined from the speech signal and the desired speech rate modification must be specified, section 2).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Covell in view of Satyamurti et al. (U.S. Pat. 5,920,840).

As per claim 5, Covell does not teach transmitting the audio data and the parameters via a network to the device.

Satyamurti teaches transmitting the audio data to the voice expansion circuitry over a telecommunications network (col. 5, line 52 to col. 6, line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to use the transmission teachings taught by Satyamurti to transmit both the audio data and the parameters to the device because this would allow the preprocessor to be located remotely from the time scaling device hence preventing any one processor from becoming overloaded.

21. As per claim 8, Covell teaches the device performs the preprocessing of the audio data to determine the parameters and stores the audio data and the parameters for later use during real-time scaling of the audio data (audio data is stored in memory and the determined parameters are used to determine the compression at a later time hence they must inherently be stored or buffered in memory for computation, col. 3, lines 52-64 and col. 5, lines 54-61).

Covell does not specifically teach or suggest performing real-time time scaling.

Satyamurti teaches a time scaling technique that is suggested to be performed in real-time (col. 10, lines 54-63).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to perform in real-time as suggested by Satyamurti because this would allow a conversation between two distinct parties to be carried out with the system without the parties being bothered by delays.

22. Claims 6, 7 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Covell in view of Roucos.

As per claims 6, 7 and 24, Covell teaches the audio data comprises a plurality of input frames with offsets (speech signal is divided into overlapping frames, col. 6, lines 27-36).

Covell does not teach the parameters comprise a plurality of offsets for each input frame, each offset identifying for an associated input frame a block of samples for use in generating time-scaled data from the associated input frame, wherein each offset corresponding to different time scales.

Roucos teaches the parameters comprise a plurality of offsets for each input frame, each offset identifying for an associated input frame a block of samples for use in generating time-scaled data from the associated input frame, wherein each offset corresponding to different time scales (the speech signal is broken up into frames each with its own offset where each offset would correspondingly have a time-scale calculated for it, sections 2-3).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell so the parameters comprise a plurality of offsets for each input frame, each offset identifying for an associated input frame a block of samples for use in generating time-scaled data from the associated input frame, wherein each offset corresponding to different time scales as taught by Roucos because it would allow for better time-scaling of non-uniform audio input signals.

23. As per claims 22 and 23, Covell does not teach each parameter for a frame identifies a block of the samples that is used to generate time-scaled data from the frame.

Roucos teaches the parameters comprise a plurality of offsets for each input frame, each offset identifying for an associated input frame a block of samples for use in generating time-scaled data from the associated input frame, wherein each offset corresponding to different time scales (the speech signal is broken up into frames each with its own offset where each offset would correspondingly have a time-scaled calculated for it, sections 2-3).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell so each parameter for a frame identifies a block of the samples that is used to generate time-scaled data from the frame as taught by Roucos because it would allow for better time-scaling of non-uniform audio input signals.

24. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Covell in view of Applicant's admitted prior art.

As per claim 13, Covell does not specifically teach a telephone that receives audio data and the parameters from the voice mail system.

Applicant's admitted prior art teaches that retrieving audio data from a voice mail system is notoriously well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to receive the audio data and parameters from the voice mail system because this would allow the user to retrieve the compressed audio data from the voice mail system hence giving the voice mail system functionality.

25. As per claims 14 and 15, Covell does not teach a server performing the preprocessing of the audio data to determine the parameters associated with time scaling of the audio data and the device comprises a telephone that receives the audio data and the parameters from the server.

Applicant's admitted prior art teaches that the use of time scaling in network systems is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to perform the perform the time scaling system on a network because this would allow the processing to be distributed on many devices throughout a network hence reducing the workload of the device.

26. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Covell in view of Satyamurti and Applicant's admitted prior art

Covell teaches the device performs the preprocessing of the audio data to determine the parameters and stores the audio data and the parameters for later use during real-time scaling of the audio data (audio data is stored in memory and the determined parameters are used to determine the compression at a later time hence

they must inherently be stored or buffered in memory for computation, col. 3, lines 52-64 and col. 5, lines 54-61).

Covell does not specifically teach or suggest performing real-time time scaling.

Satyamurti teaches a time scaling technique that is suggested to be performed in real-time (col. 10, lines 54-63).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to perform in real-time as suggested by Satyamurti because this would allow a conversation between two distinct parties to be carried out with the system without the parties being bothered by delays.

Covell and Satyamurti do not teach the device comprises a server.

Applicant's admitted prior art teaches that the use of time scaling in network systems is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Covell to perform the perform the time scaling system on a network because this would allow the processing to be distributed on many devices throughout a network hence reducing the workload of the device.

Allowable Subject Matter

27. Claim 19 would be allowable if rewritten ~~to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and~~ to include all of the limitations of the base claim and any intervening claims. None of the prior art on record

teaches interpolating the preprocessed offsets to determine the offset corresponding to the selected time scale.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Selly (U.S. Pat. 6,718,309) and Choi et al. (U.S. Pat. Pub. 2002/0101368A1) teach alternate methods for time scaling audio.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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11/22/05

W. R. YOUNG
PRIMARY EXAMINER